

OCT 19 2021

**Ropp, Matt**Crook County  
Community Development

**From:** BRINKMANN Bob \* DGMI <bob.brinkmann@oregon.gov>  
**Sent:** Tuesday, October 12, 2021 6:29 PM  
**To:** Ropp, Matt  
**Cc:** BALZER Vaughn \* DGMI; TATALOVICH Nicholas \* DGMI; MUNDIE Ben \* DGMI; Steyaert, Jeff  
**Subject:** RE: Woodward Site - Area Wells

**\*\* WARNING: EXTERNAL SENDER. NEVER click links or open attachments without positive sender verification of purpose. DO NOT provide your user ID or password on sites or forms linked from this email. \*\***

Matt,  
See below per your request.

To Crook County Court,

DOGAMI understands that Knife River Corp. (KRC) has a land use application before the County Planning Commission to permit a sand and gravel pit operation to the east of the currently permitted Woodward site (ID No. 07-0159). Although our department has yet to receive an application for the new site (Vanier), as the Hydrogeologist for MLRR I have reviewed KRC's groundwater characterization report and would like to provide some insight into our process in permitting these types of operations and the measures taken to protect offsite groundwater resources.

Based on a review of the report, the proposed operations will include pit dewatering to access the sand and gravel resource to ~35' feet below grade. The mine plan includes extraction through mine cells with water conveyed to a recharge trench to maintain the water balance within the local water table. This method of pit dewatering is practiced at a number of sand and gravel operations across the state and permit conditions are in place to prevent unacceptable water level declines from occurring in offsite water supply wells. This is accomplished through the installation of one or more groundwater monitoring wells with continuous recorders to track water levels throughout the life of mine. Should MLRR determine that unacceptable declines in head are extending beyond the mine permit boundary then mitigation measures will be required that include one or a combination of ceasing pit dewatering, replacement of affected offsite supply wells or modification (i.e. extending and/or deepening) to the recharge trench to offset documented impacts.

To date, MLRR has not had an instance where a properly installed and maintained recharge trench with real time water level monitoring has failed to prevent unacceptable declines in head to offsite water supply wells. In addition, baseline water quality sampling is performed that includes analyses for turbidity, nitrogen as nitrate/nitrite, total iron, and coliform. The purpose of this is to establish water quality conditions of the local water table prior to pit dewatering activities. Additional analyses for analytes such as GRO/DRO has been found to be unnecessary unless there has been a documented release in the area.

Please feel free to contact me should you have additional questions or concerns.

Regards,  
Bob Brinkmann, R.G.  
Hydrogeologist; Hydrocarbon/  
Geothermal Resources Geologist  
**Oregon Department of Geology and Mineral Industries**  
**Mineral Land Regulation & Reclamation**  
**541 967-2068**

*Unless otherwise indicated, all information in this correspondence is classified as Level 1, "Published" according to State of Oregon statute and administrative policy*